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A NEW GENUS AND TWO NEW SPECIES OF COTTOID FISHES FROM THE ALEUTIAN ISLANDS

By Leonard P. Schultz

During the summer of 1937, O. J. Murie and Victor B. Scheffer collected some fishes for the U. S. Biological Survey while on an expedition to the Aleutian Islands. While identifying these fishes for the Department of Agriculture, I found among them two new cottoids, which are described below.

PHALLOCOTTUS, new genus

Genotype.—Phallocottus obtusus, new species.

The characters of the genus are those of the species.

This new genus differs from all other cottoid genera in combining the absence of palatine teeth and the arched lateral line with smooth skin, short, bluntly rounded preopercular spine, gill membranes broadly united and forming a wide free fold across isthmus, anus in anterior third of the distance between insertion of pelvics and origin of anal fin, I, 3 pelvics, among other characters. It is most closely related to the Oligocottinae as defined by Hubbs, 1926,[1] but differs from them in the lack of palatine teeth and the blunt and rounded preopercular spine. The genus *Sigmistes*, upon re-examination of one of the paratypes, shows in a clay impression three teeth at the head of each palatine bone.

[1] Hubbs, Carl L., A revision of the fishes of the subfamily Oligocottinae. Occ. Pap. Mus. Zool. Univ. Michigan, No. 171, pp. 1–18, 1926.

PHALLOCOTTUS OBTUSUS, new species

FIGURE 70

Holotype.—A male specimen 61 mm long to base of rays of caudal fin, collected in a beach seine at Igitkin Island (Aleutian Islands), Alaska, August 9, 1937, by Victor B. Scheffer, original number V. B. S. 109, U.S.N.M. no. 105280. Five paratypes were collected along with the holotype, U.S.N.M. no. 105281.

Description (based on the holotype and five paratypes).—The counts and measurements of the holotype are given outside the parentheses and those for each paratype, respectively, are enclosed in the parentheses. All measurements are expressed in hundredths of the standard length. The last two soft rays of dorsal and anal fins, often branching from a common base, were counted as one ray.

Dorsal fin rays XI, 24 (XI, 22; XII, 22; XI, 22; XII, 22; XI, 23); anal fin rays 24 (23, 22, 22, 22, 23); pectoral fin rays 15–15 in all specimens; principal caudal rays 11 (12, 12, 12, 12, 12); number of pores in the lateral line 48 (48, 48, 49, 48, 48); length from tip of snout to base of midcaudal fin rays 61 (53.3, 53, 50.5, 51.2, 47.4) mm; sex ♂ (♂, ♀, ♂, ♂, ♀); greatest depth of body 24.6 (23.6, 27.4, 21.0, 23.2, 23.2); length of head 26.8 (28.1, 29.2, 28.7, 26.4, 27.8); length of snout 8.2 (8.5, 8.1, 8.9, 8.2, 8.0); length of longest soft dorsal ray 12.3 (11.3, 11.3, 13.8, 12.1, 12.5); length of longest spinous dorsal ray 19.7 (19.7, 12.1, 18.2, 15.2, 11.4); length of longest anal fin ray 12.4 (12.4, 10.9, 11.1, 10.7, 9.1); length of longest pectoral fin ray 22.0 (24.4, 23.8, 24.6, 24.0, 26.0); length of longest caudal fin ray 16.7 (16.9, 17.0, 16.4, 17.8, 17.9); length of longest pelvic fin ray 14.5 (15.0, 9.4, 15.2, 14.6, 9.7); interorbital space 9.4 (9.4, 9.3, 9.9, 9.9, 9.7); length of maxillaries 11.1 (12.7, 12.1, 11.3, 11.7, 11.4); least depth of caudal peduncle 6.5 (6.6, 6.6, 6.3, 7.2, 7.0); length of caudal peduncle or the distance from the posterior edge of the base of the last anal fin ray to the base of the midcaudal fin rays 12.3 (14.1, 13.2, 12.7, 15.0, 13.3); diameter of eye 6.5 (6.8, 7.5, 7.5, 7.4, 7.2); distance from tip of snout to origin of anal fin 46.0 (47.0, 52.8, 46.4, 46.3, 47.6); distance from tip of snout to origin of spiny dorsal 28.0 (28.1, 26.4, 27.4, 25.4, 27.0); distance from tip of snout to insertion of pelvic fins 29.5 (30.0, 35.8, 30.1, 32.0, 35.2); distance from tip of snout to middle of vent or midbase of anal papillae 36.2 (34.1, 39.6, 34.3, 38.3, 38.2).

Gill membranes broadly joined to each other, forming a broad free fold across the isthmus; preopercular spine at upper angle of the bone short, blunt, or rounded, not hooked upward as in *Sigmistes;* interorbital space wide, slightly convex; nasal spines concealed, not at all projecting; small sharp teeth present in bands on jaws and vomer, none on palatines; body compressed, deep; skin smooth; lat-

eral line complete, arched over pectoral fin as in *Sigmistes caulias;* no slit behind last gill; anal papillae of male simple, long, conical, unbranched at tip; vent about one-fourth to one-third the distance from the insertion of the pelvic fins to the origin of the anal fin; pelvic fin rays I, 3; one bannerlike cirrus on tip of each dorsal spine except the first; a single unbranched cirrus at each pore of anterior portion of the arch of lateral line, the last cirrus being about under the origin of soft dorsal; a pair of simple dermal cirri over each concealed nasal spine; a large multibranched cirrus over each eye, and another pair of simple unbranched cirri occurs on the occiput about one-third of the distance from those over the eyes to the origin of the spiny dorsal fin; jaws about the same length; snout blunt; spinous dorsal of mature males much higher than on females.

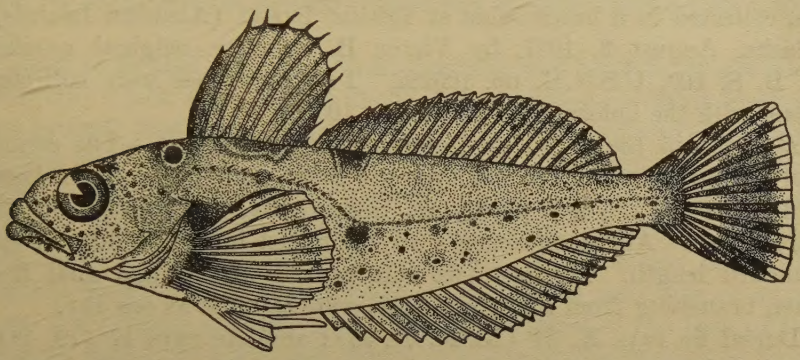

FIGURE 70.—*Phallocottus obtusus,* new genus and species: Holotype, U. S. N. M. no. 105280. Drawn by Jane Roller.

Color in alcohol, pale yellowish below, darker above; body finely speckled with tiny black dots, more dense on upper portions of body; anal fin of male yellow-orange; spinous dorsal fin of male blackish anteriorly and brownish orange posteriorly; lower portion of pectorals of male yellowish orange; fins otherwise light grayish; soft dorsal with four or five faint and very irregular cross bars; several ocelli or black spots surrounded by light areas occur on top of head and body as follows: One on top of head midway between eyes; one on midline of occiput; a pair on upper side of head a little in front of origin of soft dorsal, or just above the anterior end of the lateral line; and several faint irregular ones below the lateral line on side of body sometimes absent. Black spots occur as follows: One above upper edge of base of pectoral fin, and one at base of midrays of pectoral fin; another at base of fourth, fifth, or sixth soft dorsal rays; another series of small faint irregular spots occur along the lateral line; two of the paratypes have a row of roundish light areas

just below the lateral line, sometimes their centers are somewhat pigmented; caudal fin barred; anal fin plain whitish to grayish on females.

This species differs from other cottids in combining the absence of palatine teeth, the arched lateral line, pelvics I, 3, with smooth skin, bluntly rounded preopercular spine, anus just behind pelvic insertion, dorsal rays XI or XII, 22 to 24; anal rays 22 to 24.

Named in reference to the large conical anal papillae and the bluntly rounded preopercular spine.

Genus SIGMISTES Rutter

SIGMISTES SMITHI, new species

Holotype.—A male specimen 37.5 mm long to base of rays of caudal fin, collected in a beach seine at Igitkin Island (Aleutian Islands), Alaska, August 9, 1937, by Victor B. Scheffer, original number V. B. S. 109, U.S.N.M. no. 105282. Two paratypes were collected along with the holotype, U.S.N.M. no. 105283.

Description (based on the holotype and paratypes).—The counts and measurements of the holotype are given outside the parentheses and those for the two paratypes, respectively, are enclosed in the parentheses. All measurements are expressed in hundredths of the standard length. The last two soft rays of dorsal and anal fins, often branching from a common base, were counted as one ray.

Dorsal fin rays X, 24 (X, 24, X, 24); anal fin rays 17 (19, 18); pectoral fin rays 14–14 in all specimens; principal caudal fin rays 12 (12, 12); number of pores in the lateral line 46 (46, 45); length from tip of snout to base of midcaudal fin rays 37.5 (31.5, 29.0) mm; sex ♂ (♂, ♀); greatest depth of body 26.7 (28.5, 25.8); length of head 28.3 (30.4, 29.6); length of snout 8.3 (9.2, 7.9); length of longest soft dorsal fin ray 16.0 (15.5, 14.5); length of longest spinous dorsal ray 12.0 (12.7, 13.8); length of longest anal fin ray 11.2 (12.4, 12.1); length of longest pectoral fin ray 28.0 (28.6, 28.9); length of longest caudal fin ray 20.0 (23.8, 22.6); length of longest pelvic fin ray 13.3 (15.3, 12.8); interorbital space 6.7 (6.3, 6.9); length of maxillaries 12.0 (12.7, 11.0); least depth of caudal peduncle 6.7 (6.3, 6.2); length of caudal peduncle 16.0 (14.3, 14.5); diameter of eye 7.7 (8.3, 8.3); distance from tip of snout to origin of anal fin 51.1 (51.5, 48.3); distance from tip of snout to origin of spinous dorsal fin 28.0 (28.6, 28.0); distance from tip of snout to insertion of pelvic fins 33.4 (35.0, 32.7); distance from tip of snout to middle of vent or midbase of the anal papillae 40.0 (42.6, 38.6).

Gill membranes broadly joined to each other and forming a broad free fold across the isthmus; preopercular spine at upper angle of bone, simple, short, and hooked upward; interorbital space shallowly

concave; nasal spines prominent with a pair of tentacles on each spine; teeth present on vomer, none on the palatines or possibly one very weak tooth; body compressed, deep; skin smooth; lateral line complete, with about 45 or 46 pores, and arched over the pectoral fin; no slit behind last gill; anal papillae large, conical, without horns at tip; vent in anterior portion of middle third of distance from pelvic fins to the origin of the anal fin; pelvic fin rays I, 3; bannerlike cirri on tips of spinous dorsal rays; one unbranched cirrus at each pore of arch of lateral line, no cirri posteriorly; one pair of cirri on each nasal spine, the inner cirrus the largest; a pair of branched dermal cirri over the eyes; another pair, unbranched, on occiput, about half way from eye to origin of dorsal; a third pair about one-third the distance back between the second pair and origin of dorsal; no other cirri on head; nostrils tubular; lower jaw slightly shorter than upper jaw.

Color in alcohol, pale yellowish, the body and head finely speckled with tiny black dots, denser above, lighter below; a faint blackish line extends from the last occipital tentacle forward and downward toward upper edge of pupil; in front of eye is a faint blackish band about as wide as one-half the diameter of the eye, with a light streak through the middle of the band and including the anterior nostril; this darkish band continues on to the tip of the snout; dorsal fin slightly darker grayish than body, more intense near tips of rays; there is a grayish spot about the size of the pupil at the base of the seventh, eighth, or ninth soft dorsal ray; one at the twelfth or fourteenth, and sometimes another at the sixteenth or nineteenth; a large grayish blotch occurs on the upper side of the caudal peduncle at the rear end of the dorsal fin; color plain without any trace of vertical bars on body or fins.

Sigmistes smithi differs from the only other member of the genus, *Sigmistes caulias* Rutter,[2] in having X, 24 dorsal fin rays and 17 to 19 anal fin rays instead of IX, 19 to 21 dorsal rays and 14 or 15 anal rays, respectively, and a different color pattern.

Named for Dr. Hugh M. Smith, in honor of his numerous valuable contributions in ichthyology made over a long period of years.

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[2] Rutter, C. M., *in* Jordan and Evermann, U. S. Nat. Mus. Bull. 47, pt. 3, pp. 2863–2864, 1898.

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